Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	4	"4117156".pn. "5091385".pn. "5177073".pn. "5489590".pn.	USPAT	OR	OFF	2004/09/03 11:49
L2	4	1	USPAT	OR	OFF	2004/09/03 12:11
L3	186	514/33.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2004/09/03 12:12
L4	458	514/510.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2004/09/03 12:12
L5	398	514/548.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2004/09/03 12:12
L6	361	552/208.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2004/09/03 12:12
L7	252	552/243.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2004/09/03 12:12
L8	280	552/261.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2004/09/03 12:12
L9	306	552/262.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2004/09/03 12:12
L10	271	552/265.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2004/09/03 12:12
L11	141	552/266.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2004/09/03 12:12

L12	2191	3 4 5 6 7 8 9 10 1	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2004/09/03 12:13
L13	2287	11 12	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2004/09/03 12:13
L14	5	13 and trematode	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2004/09/03 12:13
L15	7	13 and trematoda	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2004/09/03 12:13
L16	4	13 and nematoda	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2004/09/03 12:13
L17	10	13 and helminth	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2004/09/03 12:13
L18	15	14 15 16 17	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2004/09/03 12:15
L19	0	13 and flatworm	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2004/09/03 12:15

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E3            1 --> 58322-78-4/RN
E4            1      58322-79-5/RN
E5            1      58322-80-8/RN
E6            1      58322-81-9/RN
E7            1      58322-82-0/RN
E8            1      58322-83-1/RN
E9            1      58322-84-2/RN
E10           1      58322-85-3/RN
E11           1      58322-86-4/RN
E12           1      58322-87-5/RN

=> s e3
L1            1 58322-78-4/RN

=> d

L1   ANSWER 1 OF 1  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   58322-78-4  REGISTRY
CN   9,10-Anthracenedione, 1,2,8-trihydroxy-3-methyl- (9CI)  (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN   Anthraquinone, 1,2,8-trihydroxy-3-methyl- (6CI)
OTHER NAMES:
CN   2-Hydroxychrysophanol
FS   3D CONCORD
MF   C15 H10 O5
LC   STN Files:   BEILSTEIN*, CA, CANCERLIT, CAOLD, CAPLUS, CASREACT, IPA,
       MEDLINE, TOXCENTER, USPATFULL
         (*File contains numerically searchable property data)
DT.CA  CAplus document type:  Journal; Patent
RL.P   Roles from patents:  BIOL (Biological study); OCCU (Occurrence); PREP
       (Preparation); PRP (Properties); USES (Uses)
RL.NP  Roles from non-patents:  BIOL (Biological study); OCCU (Occurrence);
       PREP (Preparation); PRP (Properties); RACT (Reactant or reagent); USES
       (Uses); NORL (No role in record)
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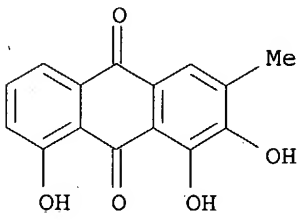


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**PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

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             12 REFERENCES IN FILE CAPLUS (1907 TO DATE)
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E3            1 --> 479482-94-5/RN
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=> s e3
L2              1 479482-94-5/RN

=> d

L2   ANSWER 1 OF 1  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   479482-94-5  REGISTRY
CN   9,10-Anthracenedione, 1,2,8-trihydroxy-3-(hydroxymethyl)- (9CI)  (CA INDEX
     NAME)
OTHER NAMES:
CN   Kwanzoquinone E
FS   3D CONCORD
MF   C15 H10 O6
SR   CA
LC   STN Files:   CA, CAPLUS, TOXCENTER, USPATFULL
DT.CA  CAplus document type:  Journal; Patent
RL.P   Roles from patents:  BIOL (Biological study); OCCU (Occurrence); PREP
       (Preparation); PRP (Properties); USES (Uses)
RL.NP  Roles from non-patents:  BIOL (Biological study); OCCU (Occurrence);
       PREP (Preparation); PRP (Properties); USES (Uses)
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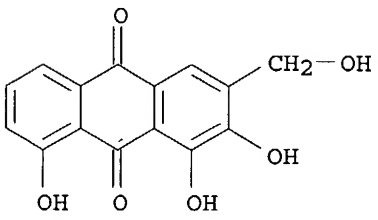


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**PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

              4 REFERENCES IN FILE CA (1907 TO DATE)
              4 REFERENCES IN FILE CAPLUS (1907 TO DATE)

=> file registry
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                       ENTRY    SESSION
FULL ESTIMATED COST                                     4.38       4.59

FILE 'REGISTRY' ENTERED AT 09:49:36 ON 03 SEP 2004
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
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Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.
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STRUCTURE FILE UPDATES: 1 SEP 2004 HIGHEST RN 737690-81-2
DICTIONARY FILE UPDATES: 1 SEP 2004 HIGHEST RN 737690-81-2

TSCA INFORMATION NOW CURRENT THROUGH MAY 21, 2004

  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more
information enter HELP PROP at an arrow prompt in the file or refer
to the file summary sheet on the web at:
http://www.cas.org/ONLINE/DBSS/registryss.html

=> s l1
L3   1 58322-78-4/RN

=> file caplus
COST IN U.S. DOLLARS   SINCE FILE   TOTAL
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FULL ESTIMATED COST   0.42   5.01

FILE 'CAPLUS' ENTERED AT 09:49:45 ON 03 SEP 2004
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

FILE COVERS 1907 - 3 Sep 2004 VOL 141 ISS 11
FILE LAST UPDATED: 2 Sep 2004 (20040902/ED)

  This file contains CAS Registry Numbers for easy and accurate
  substance identification.

=> s l1
L4   12 L1

=> s l2
L5   4 L2

=> s l4 or l5
L6   12 L4 OR L5

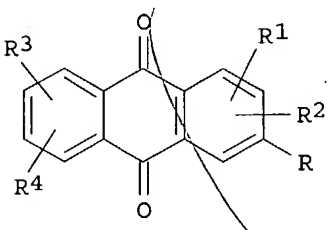
=> d abs bib 1-12 l6

L6   ANSWER 1 OF 12 CAPLUS COPYRIGHT 2004 ACS on STN
AB   Daylilies (Hemerocallis) are used medicinally in eastern Asia and exts. of
     the plant had been shown to inhibit cell proliferation and induce cancer

cells to undergo differentiation. In our studies of the constituents of Hemerocallis fulva var. Kwanzo' roots, we isolated a series of new [kwanzoquinones A (1), B (2), C (4), D (5), E (6), F (7), G (9)] and known [2-hydroxychrysophanol (3) and rhein (8)] anthraquinones. These compds. were tested in order to determine their potential roles as cancer cell growth inhibitors. Kwanzoquinones A-C and E, kwanzoquinone A and B monoacetates (1a and 2a), 2-hydroxychrysophanol, and rhein inhibited the proliferation of human breast, CNS, colon, and lung cancer cells with GI50 values between 1.8 to 21.1 μg/mL. However, upon exposure of the cancer cells to the GI50 concns. of the bioactive anthraquinones, most of the cancer cell lines exhibited higher than anticipated levels of cell viability. Co-incubation of the anthraquinones with vitamins C and E increased the viability of breast cancer cells. In contrast, vitamins C and E potentiated the cytotoxic effects of the anthraquinones against the colon cancer cells. None of the anthraquinones inhibited the activity of topoisomerase.

AN 2004:78682 CAPLUS
DN 140:368230
TI Inhibition of human tumor cell proliferation by novel anthraquinones from daylilies
AU Cichewicz, Robert H.; Zhang, Yanjun; Seeram, Navindra P.; Nair, Muraleedharan G.
CS Department of Horticulture and National Food Safety and Toxicology Center, Bioactive Natural Products and Phytoceuticals, Michigan State University, East Lansing, MI, 48824, USA
SO Life Sciences (2004), 74(14), 1791-1799
CODEN: LIFSAK; ISSN: 0024-3205
PB Elsevier Science Inc.
DT Journal
LA English
RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 2 OF 12 CAPLUS COPYRIGHT 2004 ACS on STN
GI



I

AB Anthraquinones are described which are anthelmintic and in particular, are useful in compns. for inhibiting Schistosoma sp. In vitro or in vivo. The preferred anthraquinones have the formula (I) wherein R1, R2, R3, and R4 are each hydrogen, hydroxy, halogen, alkyl, substituted alkyl, alkene, substituted alkene, alkyne, aryl, substituted aryl, cyclic, substituted cyclic, acid group, carbohydrate, or combination thereof, R is a group containing 1 to 12 carbons such as Me, alkyl, substituted alkyl, aldehyde, hydroxy, hydroxymethyl, acid group, 15 carbohydrate, or combination thereof, and the halogen X is I, F, Br, or Cl. The isolation and characterization of anthraquinones from the roots of daylilies (Hemerocallis fulva) is described.

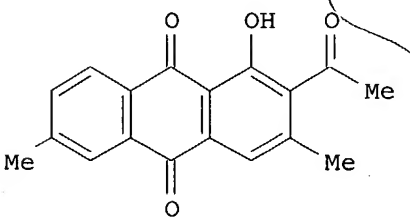
AN 2003:856025 CAPLUS
DN 139:345896

TI Anthelmintic anthraquinones and method of use thereof
IN Cichewicz, Robert H.; Nair, Muraleedharan G. Nair; McKerrow, James H.
PA Michigan State University, USA; The Regents of the University of California
SO PCT Int. Appl., 80 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003089577	A2	20031030	WO 2003-US11303	20030411
	WO 2003089577	A3	20031231		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	US 2003229032	A1	20031211	US 2002-317906	20021212
	US 2004106686	A1	20040603	US 2003-723671	20031126
	US 2004116361	A1	20040617	US 2003-723672	20031126
	US 2004152645	A1	20040805	US 2004-761071	20040120
PRAI	US 2002-372576P	P	20020415		
	US 2002-389368P	P	20020617		
	US 2002-317906	A	20021212		

OS MARPAT 139:345896

L6 ANSWER 3 OF 12 CAPLUS COPYRIGHT 2004 ACS on STN
GI



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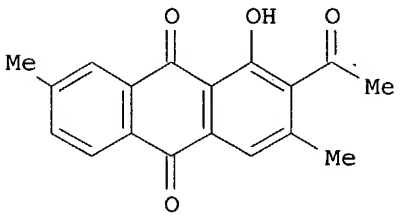


II

AB Anthraquinones are described which have anticancer or antitumor activity and which are useful for inhibiting cancer cells and cells comprising

tumors in vitro or in vivo. Anthraquinones such as kwanzoquinones A (I) and B (II) along with six other derivs. were isolated from Hemerocallis fulva plants and their antitumor activity determined

AN 2003:856024 CAPLUS
DN 139:341716
TI Anticancer anthraquinones from Hemerocallis fulva
IN Nair, Muraleedharan G. Nair; Cichewicz, Robert H.; Seeram, Navindra P.; Zhang, Yanjun
PA Michigan State University, USA
SO PCT Int. Appl., 60 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2003089576	A2	20031030	WO 2003-US11302	20030411
WO 2003089576	A3	20031231		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2003229032	A1	20031211	US 2002-317906	20021212
PRAI US 2002-372576P	P	20020415		
US 2002-389368P	P	20020617		
US 2002-317906	A	20021212		
US 2003-355483	A	20030131		

L6 ANSWER 4 OF 12 CAPLUS COPYRIGHT 2004 ACS on STN
AB Two new anthraquinones, 7-hydroxy-1,2,8-trimethoxy-3-methylanthraquinone and 7,8-dihydroxy-1,2-dimethoxy-3-methylanthraquinone, were isolated from the roots of Hemerocallis fulva. Their structures were established on the basis of spectral evidence (NMR and MS).
AN 2003:659023 CAPLUS
DN 140:284266
TI Two new anthraquinones from Hemerocallis fulva
AU Huang, Yu-Ling; Chow, Fang-Hua; Shieh, Bor-Jinn; Ou, Jun-Chih; Chen, Chien-Chih
CS National Research Institute of Chinese Medicine, Taipei, Taiwan, Peop. Rep. China
SO Chinese Pharmaceutical Journal (Taipei, Taiwan) (2003), 55(1), 83-86
CODEN: CPHJEP; ISSN: 1016-1015
PB Pharmaceutical Society of Republic of China
DT Journal
LA English
RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 5 OF 12 CAPLUS COPYRIGHT 2004 ACS on STN
AB Schistosomiasis is a debilitating disease caused by parasitic trematodes of the genus Schistosoma that afflicts 200 million people worldwide. Daylilies (Hemerocallis spp.) have been used in Asia for the treatment of schistosomiasis; however, the active principles have not been fully characterized. In our studies of Hemerocallis fulva Kwanzo' Kaempfer

roots, we have isolated seven new anthraquinones, kwanzoquinones A (1), B (2), C (4), D (5), E (6), F (7), and G (9), two known anthraquinones, 2-hydroxychrysophanol (3) and rhein (8), one new naphthalene glycoside, 5-hydroxydianellin (11), one known naphthalene glycoside, dianellin (10), one known flavone, 6-methylluteolin (12), and α-tocopherol. The structures of the compds. were elucidated by spectroscopic and chemical methods. Compds. 1-11 and the monoacetates of kwanzoquinones A and B, 1a and 2a, resp., were tested for their activity against multiple life-stages of Schistosoma mansoni. Compound 3 immobilized all cercariae within 15 s at 3.1 μg/mL. However, upon removal of the compound, 20% of the immobilized cercariae recovered after 24 h. In contrast, compound 6 immobilized cercariae within 12-14 min at 25 μg/mL. Following removal of the compound, all cercariae died within 24 h. The adult worms were also immobilized within 16 h by compds. 3 and 6 at 50 μg/mL. None of the compds. had an effect on the schistosomula stage.

AN 2002:788802 CAPLUS
DN 138:52682
TI Kwanzoquinones A-G and other constituents of Hemerocallis fulva 'Kwanzo' roots and their activity against the human pathogenic trematode Schistosoma mansoni
AU Cichewicz, Robert H.; Lim, Kee-Chong; McKerrow, James H.; Nair, Muraleedharan G.
CS Department of Horticulture and National Food Safety and Toxicology Center, Bioactive Natural Products and Phytoceuticals, Michigan State University, East Lansing, MI, 48824, USA
SO Tetrahedron (2002), 58(42), 8597-8606 Bad Date
CODEN: TETRAB; ISSN: 0040-4020
PB Elsevier Science Ltd.
DT Journal
LA English
RE.CNT 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

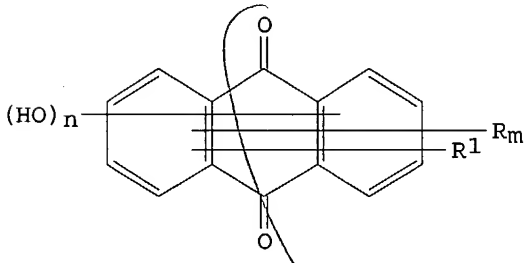
L6 ANSWER 6 OF 12 CAPLUS COPYRIGHT 2004 ACS on STN
AB Chromatog. separation and spectroscopic anal. of exts. of the five Kenyan Myrsinanceae species has shown the presence of the acetogenic compds. emodin, physcion, chrysophanol, 2-hydroxychrysophanol, and nepodin.
AN 1995:178753 CAPLUS
DN 122:51332
TI Polynuclear acetogenic pigments in the fruits of the Myrsinaceae
AU Midiwo, J. O.; Arot, L. M.
CS Department Chemistry, University Nairobi, Nairobi, Kenya
SO International Journal of BioChemiPhysics (1993), 2(1-2), 115-16
CODEN: IJBOEY; ISSN: 1019-7648
DT Journal
LA English

L6 ANSWER 7 OF 12 CAPLUS COPYRIGHT 2004 ACS on STN
AB Bioactivity-directed fractionation of the EtOH extract of roots of M. africana, using lethality to brine shrimp, led to the isolation and identification of emodin and 2-hydroxychrysophanol as cytotoxic components, the latter being a new natural product. Nepodin and 5-methoxy-7-hydroxyphthalide were also isolated and identified by mass spectroscopy, 1H NMR, IR spectroscopy, and/or UV spectra, and by those in the literature. These second two compds. were not significantly cytotoxic.
AN 1989:591446 CAPLUS
DN 111:191446
TI Bioactive compounds from the root of Myrsine africana
AU Li, Xiaohua; McLaughlin, Jerry L.
CS Sch. Pharm. Pharmacal Sci., Purdue Univ., West Lafayette, IN, 47907, USA

SO Journal of Natural Products (1989), 52(3), 660-2
CODEN: JNPRDF; ISSN: 0163-3864
DT Journal
LA English
OS CASREACT 111:191446

L6 ANSWER 8 OF 12 CAPLUS COPYRIGHT 2004 ACS on STN
AB Cycloadducts from naphthoquinonoid dienophiles and 1-methoxy-1-(trimethylsilyloxy)butadienes undergo controlled aromatization to form chiefly α-hydroxy- or α-methoxyanthraquinones. This gave several natural O-Me polyoxyanthraquinones, e.g. obtusifolin, aurantioobtusin, chrysoobutusin.
AN 1987:406908 CAPLUS
DN 107:6908
TI Synthesis of specifically O-alkylated anthraquinones by cycloaddition
AU Cameron, Donald W.; Feutrill, Geoffrey I.; Gamble, Glenn B.; Stavrakis, John
CS Dep. Org. Chem., Univ. Melbourne, Parkville, 3052, Australia
SO Tetrahedron Letters (1986), 27(41), 4999-5002
CODEN: TELEAY; ISSN: 0040-4039
DT Journal
LA English
OS CASREACT 107:6908

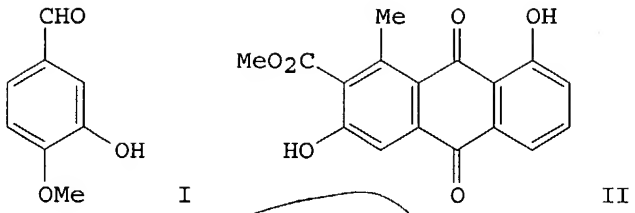
L6 ANSWER 9 OF 12 CAPLUS COPYRIGHT 2004 ACS on STN
GI



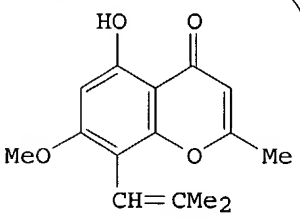
I

AB The proton NMR of the hydroxyanthraquinone derivs. (I; R = MeO, HOCH2; R1 = H, Me, O2N, HO2CCH:CH; m = 0-2; n = 1-4) was studied and the chemical shifts assigned. The H bonding strengths were estimated by the HMO method. A linear relationship was observed between ΔδOH values and the charge d. of the donor atom (qCO) in I with a peri-OH group, thus the intramol. H bonding strength was dominated by the magnitude of qCO.
AN 1985:220356 CAPLUS
DN 102:220356
TI Proton NMR of hydroxyl groups of substituted hydroxyanthraquinones
AU Song, Guoqiang; Wu, Jian; He, Xianguo
CS Shanghai Inst. Mater. Med., Acad. Sin., Shanghai, Peop. Rep. China
SO Huaxue Xuebao (1985), 43(2), 145-9
CODEN: HHHPA4; ISSN: 0567-7351
DT Journal
LA Chinese
OS CASREACT 102:220356

L6 ANSWER 10 OF 12 CAPLUS COPYRIGHT 2004 ACS on STN
GI



I II



III

AB In phenolic compds. with conjugated carbonyl groups, e.g., I, II, III, the chemical shifts of the aromatic protons were shifted downfield by acetylation of the OH group. Using 32 compds., the shift increments were found to be 0.17 (o-), 0.10 (m-), and 0.39 (p-), resp. The results were verified by HMO calcns.
AN 1984:174157 CAPLUS
DN 100:174157
TI Effect of acetylation on chemical shifts in phenolic systems with conjugated carbonyl groups
AU Song, Guoqiang; Zhou, Bingnan; Wu, Jian
CS Shanghai Inst. Mater. Med., Acad. Sin., Shanghai, Peop. Rep. China
SO Fenzi Kexue Yu Huaxue Yanjiu (1983), 3(4), 39-46
CODEN: FKYYDG
DT Journal
LA Chinese

L6 ANSWER 11 OF 12 CAPLUS COPYRIGHT 2004 ACS on STN
AB Title only translated.
AN 1976:43690 CAPLUS
DN 84:43690
TI Hydrolysis of chrysophanol monobromide
AU Chumbalov, T. K.; Nazarova, V. D.; Muzychkina, R. A.
CS USSR
SO Khimiya I Khim. Tekhnol. (1974), (15), 58-9
From: Ref. Zh., Khim. 1975, Abstr. No. 19B1068
DT Journal
LA Russian

L6 ANSWER 12 OF 12 CAPLUS COPYRIGHT 2004 ACS on STN
AB Seeds of C. obtusifolia (1 kg.) extracted 3 times with 2 l. $CHCl_3$ and 250 cc. 20% H_2SO_4 and the concentrated extract chromatographed over $CaHPO_4$ with C_6H_6 as developer gave 2 yellow bands. The 1st developed band extracted with petr. ether and rechromatographed over $CaHPO_4$ yielded 0.2 g. chrysophanol (I), m. 193-4°, and 0.01 g. physcion, m. 206°, each identical by mixed m.p. with an authentic sample. The 2nd developed band yielded 0.2 g. $C_{16}H_{12}O_5$, m. 237-8°, here named obtusifolin (II), containing 1 MeO group, insol. in H_2O and 5% $NaHCO_3$, soluble in Na_2CO_3 (orange), showing a purple-blue color in concentrated H_2SO_4, brown in $FeCl_3$, orange in alc. $Mg(OAc)_2$, and with infrared absorption characteristic of a free HO group and a chelated and a nonchelated CO group; di-Ac derivative (III), m. 187-8°, insol. in Na_2CO_3 and showing no color in $FeCl_3$ or alc.

Mg(OAc)2. These facts indicated that II is probably a β-HO derivative of anthraquinone (IV). II (0.1 g.) refluxed 8 hrs. (or 20 hrs.) with 50 cc. Me2CO, 1.5 g. K2CO3, and 2 cc. Me2SO4 (or 2 cc. Et2SO4), the solvent evaporated, and the residue heated on a water bath with 5% KOH to decompose Me2SO4 (or Et2SO4) yielded 0.08 g. di-Me ether (V) of II, m. 145-6° [or 0.08 g. di-Et ether (VI) of II, m. 127°], insol. in 5% NaOH and showing no color with FeCl3. II (0.1 g.) kept overnight at room temperature with CH2N2 in ether yielded 0.09 g. mono-Me ether (VII), m. 172.5°, soluble in 5% NaOH and showing brown color with FeCl3. II (0.12 g.) refluxed 5 hrs. at 160-80° with 20 cc. AcOH and 20 cc. 48% HBr (or II heated 2 hrs. with concentrated H2SO4 on a steam bath) and the mixture poured into H2O yielded 0.08 g. C15H10O5, m. 255°, here named norobtusifolin (VIIa), purple in Na2CO3, purple-blue in concentrated H2SO4, dark brown with FeCl3, and blue-purple with Mg(OAc)2; tri-Ac derivative (VIII), m. 221-2°; tri-Me ether identical with V. II (0.5 g.) (or VIIa) refluxed 5 hrs. with 0.5 g. red P, 15 cc. AcOH, and 3 cc. HI (d. 1.7), and the cooled mixture poured into H2O gave the crude reduction product, which dissolved in 20 cc. AcOH, kept 30 min. at room temperature with 0.3 g. CrO3 in 15 cc. AcOH, diluted with H2O, and extracted with ether yielded 0.05 g. I, m. 193-4°, and di-Ac derivative, m. 208°, each identical by mixed m.p. with an authentic sample. Thus, VIIa was shown to be a β-HO derivative of I; it is a mordant dye, and its ultraviolet absorption is almost identical with that of the 1,2,8-(HO)3 derivative of IV. II cannot be a 1,2-(HO)2 derivative because of its orange color with alc. Mg(OAc)2, but must be the 3(or 6), 1,2,8-Me(MeO)(HO)2 derivative of IV. To determine the position of the Me group, 0.25 g. VI in 10 cc. Ac2O and 10 cc. AcOH was treated dropwise during 30 min. on a steam bath with 1 g. CrO3 in 5 cc. AcOH containing 2 drops H2O, heated an addnl. 30 min., the mixture poured into 300 cc. hot H2O, cooled, filtered, and the filtrate extracted with ether to yield 0.01 g. 3-ethoxyphthalic anhydride, m. 146°, identical with an authentic sample, obtained also from the similar oxidation of the di-Et ether of chrysazin (IX), m. 173-4°, 0.08 g. from 0.1 g. IX. II is therefore established as the 3,1,2,8-Me(MeO)(HO)2 derivative of IV. Ultraviolet data for VIIa and VIII and infrared data for II, VIIa, III, and VII help confirm their structures.

AN 1959:17152 CAPLUS
DN 53:17152
OREF 53:3168f-i,3169a-c
TI Constituents of the seeds of Cassia obtusifolia. I. The structure of obtusifolin
AU Takido, Michio
CS Nihon Univ., Tokyo
SO Chemical & Pharmaceutical Bulletin (1958), 6, 397-400
CODEN: CPBTAL; ISSN: 0009-2363
DT Journal
LA Unavailable

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CA SUBSCRIBER PRICE                                       0.00      -8.40

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FILE COVERS 1907 - 3 Sep 2004  VOL 141 ISS 11
FILE LAST UPDATED: 2 Sep 2004  (20040902/ED)

  This file contains CAS Registry Numbers for easy and accurate
  substance identification.

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L8            3 L7

=> d bib abs 1-3 l8

L8   ANSWER 1 OF 3  CAPLUS  COPYRIGHT 2004 ACS on STN
AN   2004:78682  CAPLUS
DN   140:368230
TI   Inhibition of human tumor cell proliferation by novel anthraquinones from
     daylilies
AU   Cichewicz, Robert H.; Zhang, Yanjun; Seeram, Navindra P.; Nair,
     Muraleedharan G.
```

CS Department of Horticulture and National Food Safety and Toxicology Center, Bioactive Natural Products and Phytoceuticals, Michigan State University, East Lansing, MI, 48824, USA
SO Life Sciences (2004), 74(14), 1791-1799
CODEN: LIFSAK; ISSN: 0024-3205
PB Elsevier Science Inc.
DT Journal
LA English
AB Daylilies (Hemerocallis) are used medicinally in eastern Asia and exts. of the plant had been shown to inhibit cell proliferation and induce cancer cells to undergo differentiation. In our studies of the constituents of Hemerocallis fulva var. Kwanzo' roots, we isolated a series of new [kwanzoquinones A (1), B (2), C (4), D (5), E (6), F (7), G (9)] and known [2-hydroxychrysophanol (3) and rhein (8)] anthraquinones. These compds. were tested in order to determine their potential roles as cancer cell growth inhibitors. Kwanzoquinones A-C and E, kwanzoquinone A and B monoacetates (1a and 2a), 2-hydroxychrysophanol, and rhein inhibited the proliferation of human breast, CNS, colon, and lung cancer cells with GI50 values between 1.8 to 21.1 μg/mL. However, upon exposure of the cancer cells to the GI50 concns. of the bioactive anthraquinones, most of the cancer cell lines exhibited higher than anticipated levels of cell viability. Co-incubation of the anthraquinones with vitamins C and E increased the viability of breast cancer cells. In contrast, vitamins C and E potentiated the cytotoxic effects of the anthraquinones against the colon cancer cells. None of the anthraquinones inhibited the activity of topoisomerase.
RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:856025 CAPLUS
DN 139:345896
TI Anthelmintic anthraquinones and method of use thereof
IN Cichewicz, Robert H.; Nair, Muraleedharan G. Nair; McKerrow, James H.
PA Michigan State University, USA; The Regents of the University of California
SO PCT Int. Appl., 80 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 2

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	WO 2003089577	A3	20031231		
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	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
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	US 2004106686	A1	20040603	US 2003-723671	20031126
	US 2004116361	A1	20040617	US 2003-723672	20031126
	US 2004152645	A1	20040805	US 2004-761071	20040120
PRAI	US 2002-372576P	P	20020415		

US 2002-389368P P 20020617
US 2002-317906 A 20021212
OS MARPAT 139:345896
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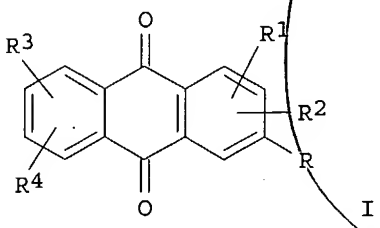

I

AB Anthraquinones are described which are anthelmintic and in particular, are useful in compns. for inhibiting Schistosoma sp. In vitro or in vivo. The preferred anthraquinones have the formula (I) wherein R1, R2, R3, and R4 are each hydrogen, hydroxy, halogen, alkyl, substituted alkyl, alkene, substituted alkene, alkyne, aryl, substituted aryl, cyclic, substituted cyclic, acid group, carbohydrate, or combination thereof, R is a group containing 1 to 12 carbons such as Me, alkyl, substituted alkyl, aldehyde, hydroxy, hydroxymethyl, acid group, 15 carbohydrate, or combination thereof, and the halogen X is I, F, Br, or Cl. The isolation and characterization of anthraquinones from the roots of daylilies (Hemerocallis fulva) is described.

L8 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2002:788802 CAPLUS
DN 138:52682
TI Kwanzoquinones A-G and other constituents of Hemerocallis fulva 'Kwanzo' roots and their activity against the human pathogenic trematode Schistosoma mansoni
AU Cichewicz, Robert H.; Lim, Kee-Chong; McKerrow, James H.; Nair, Muraleedharan G.
CS Department of Horticulture and National Food Safety and Toxicology Center, Bioactive Natural Products and Phytoceuticals, Michigan State University, East Lansing, MI, 48824, USA
SO Tetrahedron (2002), 58(42), 8597-8606
CODEN: TETRAB; ISSN: 0040-4020
PB Elsevier Science Ltd.
DT Journal
LA English
AB Schistosomiasis is a debilitating disease caused by parasitic trematodes of the genus Schistosoma that afflicts 200 million people worldwide. Daylilies (Hemerocallis spp.) have been used in Asia for the treatment of schistosomiasis; however, the active principles have not been fully characterized. In our studies of Hemerocallis fulva Kwanzo' Kaempfer roots, we have isolated seven new anthraquinones, kwanzoquinones A (1), B (2), C (4), D (5), E (6), F (7), and G (9), two known anthraquinones, 2-hydroxychrysophanol (3) and rhein (8), one new naphthalene glycoside, 5-hydroxydianellin (11), one known naphthalene glycoside, dianellin (10), one known flavone, 6-methylluteolin (12), and α-tocopherol. The structures of the compds. were elucidated by spectroscopic and chemical methods. Compds. 1-11 and the monoacetates of kwanzoquinones A and B, 1a and 2a, resp., were tested for their activity against multiple life-stages of Schistosoma mansoni. Compound 3 immobilized all cercariae within 15 s at 3.1 μg/mL. However, upon removal of the compound, 20% of the immobilized cercariae recovered after 24 h. In contrast, compound 6 immobilized

cercariae within 12-14 min at 25 μg/mL. Following removal of the compound, all cercariae died within 24 h. The adult worms were also immobilized within 16 h by compds. 3 and 6 at 50 μg/mL. None of the compds. had an effect on the schistosomula stage.

RE.CNT 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

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100.0% PROCESSED 55 ITERATIONS 1 ANSWERS
SEARCH TIME: 00.00.01

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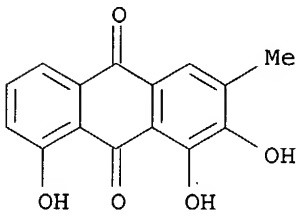
L3 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2004 ACS on STN
RN 58322-78-4 REGISTRY
CN 9,10-Anthracenedione, 1,2,8-trihydroxy-3-methyl- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Anthraquinone, 1,2,8-trihydroxy-3-methyl- (6CI)
OTHER NAMES:
CN 2-Hydroxychrysophanol
FS 3D CONCORD
MF C15 H10 O5
LC STN Files: BEILSTEIN*, CA, CANCERLIT, CAOLD, CAPLUS, CASREACT, IPA, MEDLINE, TOXCENTER, USPATFULL
(*File contains numerically searchable property data)
DT.CA CAplus document type: Journal; Patent
RL.P Roles from patents: BIOL (Biological study); OCCU (Occurrence); PREP (Preparation); PRP (Properties); USES (Uses)
RL.NP Roles from non-patents: BIOL (Biological study); OCCU (Occurrence); PREP (Preparation); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)



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12 REFERENCES IN FILE CAPLUS (1907 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

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L4 STRUCTURE UPLOADED

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SEARCH TIME: 00.00.01

L5 1 SEA EXA FUL L4

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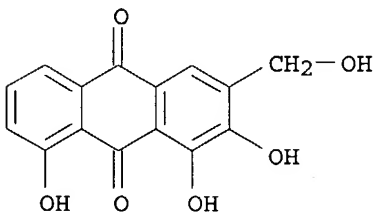
L5 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2004 ACS on STN
RN 479482-94-5 REGISTRY
CN 9,10-Anthracenedione, 1,2,8-trihydroxy-3-(hydroxymethyl)- (9CI) (CA INDEX NAME)
OTHER NAMES:
CN Kwanzoquinone E
FS 3D CONCORD
MF C15 H10 O6
SR CA
LC STN Files: CA, CAPLUS, TOXCENTER, USPATFULL
DT.CA CAplus document type: Journal; Patent
RL.P Roles from patents: BIOL (Biological study); OCCU (Occurrence); PREP (Preparation); PRP (Properties); USES (Uses)
RL.NP Roles from non-patents: BIOL (Biological study); OCCU (Occurrence); PREP (Preparation); PRP (Properties); USES (Uses)



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4 REFERENCES IN FILE CAPLUS (1907 TO DATE)

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L3            1 S L1 EXACT FULL
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L5            1 S L4 EXACT FULL

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FULL ESTIMATED COST                                     109.72     109.93

FILE 'CAPLUS' ENTERED AT 01:49:49 ON 03 SEP 2004
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FILE COVERS 1907 - 3 Sep 2004  VOL 141 ISS 10
FILE LAST UPDATED: 1 Sep 2004  (20040901/ED)

  This file contains CAS Registry Numbers for easy and accurate
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L6          12 L3 OR L5

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           539 TREMATODES
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           311 FLATWORM
           193 FLATWORMS
           412 FLATWORM
                 (FLATWORM OR FLATWORMS)
          1171 FLUKE
           675 FLUKES
          1504 FLUKE
                 (FLUKE OR FLUKES)
           313 TREMATODA
L7        2165 L6 AND TREMATODE OR FLATWORM OR FLUKE OR TREMATODA

=> s trematode or flatworm or fluke or trematoda
          1259 TREMATODE
           539 TREMATODES
          1496 TREMATODE
                 (TREMATODE OR TREMATODES)
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            412 FLATWORM
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           1171 FLUKE
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=> s l8 and l6
L9            2 L8 AND L6

=> d bib abs 1-2 l9

L9   ANSWER 1 OF 2  CAPLUS  COPYRIGHT 2004 ACS on STN
AN   2003:856025  CAPLUS
DN   139:345896
TI   Anthelmintic anthraquinones and method of use thereof
IN   Cichewicz, Robert H.; Nair, Muraleedharan G. Nair; McKerrow, James H.
PA   Michigan State University, USA; The Regents of the University of
     California
SO   PCT Int. Appl., 80 pp.
     CODEN: PIXXD2
DT   Patent
LA   English
FAN.CNT 2
     PATENT NO.          KIND   DATE        APPLICATION NO.         DATE
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PI   WO 2003089577        A2    20031030    WO 2003-US11303         20030411
     WO 2003089577        A3    20031231
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             CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
             GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
             LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,
             PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ,
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             TJ, TM
         RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG,
             CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC,
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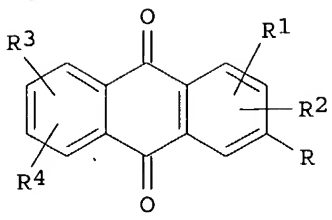

I

AB Anthraquinones are described which are anthelmintic and in particular, are useful in compns. for inhibiting Schistosoma sp. In vitro or in vivo. The preferred anthraquinones have the formula (I) wherein R1, R2, R3, and R4 are each hydrogen, hydroxy, halogen, alkyl, substituted alkyl, alkene, substituted alkene, alkyne, aryl, substituted aryl, cyclic, substituted cyclic, acid group, carbohydrate, or combination thereof, R is a group containing 1 to 12 carbons such as Me, alkyl, substituted alkyl, aldehyde, hydroxy, hydroxymethyl, acid group, 15 carbohydrate, or combination thereof, and the halogen X is I, F, Br, or Cl. The isolation and characterization of anthraquinones from the roots of daylilies (Hemerocallis fulva) is described.

L9 ANSWER 2 OF 2 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2002:788802 CAPLUS
DN 138:52682
TI Kwanzoquinones A-G and other constituents of Hemerocallis fulva 'Kwanzo' roots and their activity against the human pathogenic **trematode** Schistosoma mansoni
AU Cichewicz, Robert H.; Lim, Kee-Chong; McKerrow, James H.; Nair, Muraleedharan G.
CS Department of Horticulture and National Food Safety and Toxicology Center, Bioactive Natural Products and Phytoceuticals, Michigan State University, East Lansing, MI, 48824, USA
SO Tetrahedron (2002), 58(42), 8597-8606
CODEN: TETRAB; ISSN: 0040-4020
PB Elsevier Science Ltd.
DT Journal
LA English
AB Schistosomiasis is a debilitating disease caused by parasitic **trematodes** of the genus Schistosoma that afflicts 200 million people worldwide. Daylilies (Hemerocallis spp.) have been used in Asia for the treatment of schistosomiasis; however, the active principles have not been fully characterized. In our studies of Hemerocallis fulva Kwanzo' Kaempfer roots, we have isolated seven new anthraquinones, kwanzoquinones A (1), B (2), C (4), D (5), E (6), F (7), and G (9), two known anthraquinones, 2-hydroxychrysophanol (3) and rhein (8), one new naphthalene glycoside, 5-hydroxydianellin (11), one known naphthalene glycoside, dianellin (10), one known flavone, 6-methylluteolin (12), and α-tocopherol. The structures of the compds. were elucidated by spectroscopic and chemical methods. Compds. 1-11 and the monoacetates of kwanzoquinones A and B, 1a and 2a, resp., were tested for their activity against multiple life-stages of Schistosoma mansoni. Compound 3 immobilized all cercariae within 15 s at 3.1 μg/mL. However, upon removal of the compound, 20% of the immobilized cercariae recovered after 24 h. In contrast, compound 6 immobilized cercariae within 12-14 min at 25 μg/mL. Following removal of the compound, all cercariae died within 24 h. The adult worms were also immobilized within 16 h by compds. 3 and 6 at 50 μg/mL. None of the compds. had an effect on the schistosomula stage.
RE.CNT 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

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L10 STRUCTURE UPLOADED

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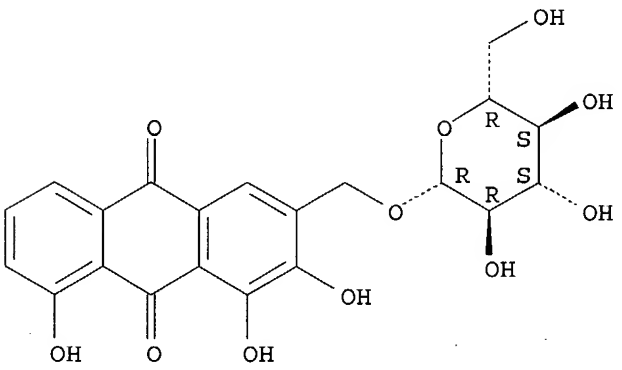
L11 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2004 ACS on STN
RN 479482-95-6 REGISTRY
CN 9,10-Anthracenedione, 3-[(β-D-glucopyranosyloxy)methyl]-1,2,8-trihydroxy- (9CI) (CA INDEX NAME)
OTHER NAMES:
CN Kwanzoquinone F
FS STEREOSEARCH
MF C21 H20 O11
SR CA
LC STN Files: CA, CAPLUS, TOXCENTER
DT.CA CAplus document type: Journal; Patent
RL.P Roles from patents: BIOL (Biological study); OCCU (Occurrence); PREP (Preparation); PRP (Properties); USES (Uses)
RL.NP Roles from non-patents: BIOL (Biological study); OCCU (Occurrence); PREP (Preparation); PRP (Properties); USES (Uses)

Absolute stereochemistry. Rotation (-).



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

3 REFERENCES IN FILE CA (1907 TO DATE)
3 REFERENCES IN FILE CAPLUS (1907 TO DATE)

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L12 STRUCTURE UPLOADED

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L13     709980 l2

=> s l12 full exact
FULL SEARCH INITIATED 02:00:29 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED -     26 TO ITERATE

100.0% PROCESSED      26 ITERATIONS                                  1 ANSWERS
SEARCH TIME: 00.00.01

L14           1 SEA EXA FUL L12

=> d

L14  ANSWER 1 OF 1  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   479482-92-3  REGISTRY
CN   9,10-Anthracenedione, 2-(β-D-glucopyranosyloxy)-1,8-dihydroxy-3-
     methyl- (9CI)  (CA INDEX NAME)
OTHER NAMES:
CN   Kwanzoquinone C
FS   STEREOSEARCH
MF   C21 H20 O10
SR   CA
LC   STN Files:   CA, CAPLUS, TOXCENTER, USPATFULL
DT.CA  CAplus document type:  Journal; Patent
RL.P   Roles from patents:  BIOL (Biological study); OCCU (Occurrence); PREP
       (Preparation); PRP (Properties); USES (Uses)
RL.NP  Roles from non-patents:  BIOL (Biological study); OCCU (Occurrence);
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Absolute stereochemistry.  Rotation (-).
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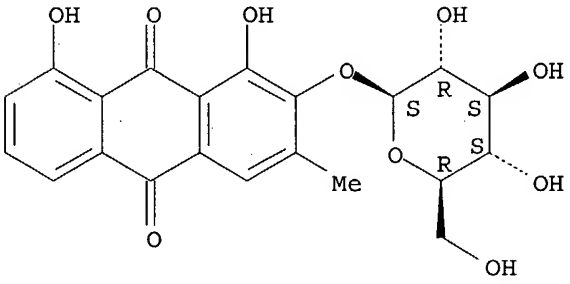


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**PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

              4 REFERENCES IN FILE CA (1907 TO DATE)
              4 REFERENCES IN FILE CAPLUS (1907 TO DATE)


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L15     STRUCTURE UPLOADED

=> s l15 exact full
FULL SEARCH INITIATED 02:01:04 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED -      0 TO ITERATE
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SEARCH TIME: 00.00.01

L16            0 SEA EXA FUL L15

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     (FILE 'HOME' ENTERED AT 01:46:30 ON 03 SEP 2004)

     FILE 'REGISTRY' ENTERED AT 01:47:09 ON 03 SEP 2004
                E 1,2,8-TRIHYDROXY-3-METHYL ANTHRAQUINONE/CN
                E 1,2,8-TRIHYDROXY-3-METHYLANTHRAQUINONE/CN
L1              STRUCTURE UPLOADED
L2            0 S L1
L3            1 S L1 EXACT FULL
L4              STRUCTURE UPLOADED
L5            1 S L4 EXACT FULL

     FILE 'CAPLUS' ENTERED AT 01:49:49 ON 03 SEP 2004
L6           12 S L3 OR L5
L7         2165 S L6 AND TREMATODE OR FLATWORM OR FLUKE OR TREMATODA
L8         3259 S TREMATODE OR FLATWORM OR FLUKE OR TREMATODA
L9            2 S L8 AND L6

     FILE 'REGISTRY' ENTERED AT 01:59:19 ON 03 SEP 2004
L10             STRUCTURE UPLOADED
L11           1 S L10 FULL EXACT
L12             STRUCTURE UPLOADED
L13      709980 S 12 FULL EXACT
L14           1 S L12 FULL EXACT
L15             STRUCTURE UPLOADED
L16           0 S L15 EXACT FULL

=> file caplus
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
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FULL ESTIMATED COST                                   166.40     297.31

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)          SINCE FILE      TOTAL
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CA SUBSCRIBER PRICE                                     0.00      -1.40

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FILE COVERS 1907 - 3 Sep 2004 VOL 141 ISS 10
FILE LAST UPDATED: 1 Sep 2004 (20040901/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

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=> s l11 or l14
             3 L11
             4 L14
L17          4 L11 OR L14

=> s l17 and l7
L18          2 L17 AND L7

=> d bib abs 1-2 l18

L18  ANSWER 1 OF 2  CAPLUS  COPYRIGHT 2004 ACS on STN
AN   2003:856025  CAPLUS
DN   139:345896
TI   Anthelmintic anthraquinones and method of use thereof
IN   Cichewicz, Robert H.; Nair, Muraleedharan G. Nair; McKerrow, James H.
PA   Michigan State University, USA; The Regents of the University of
     California
SO   PCT Int. Appl., 80 pp.
     CODEN: PIXXD2
DT   Patent
LA   English
FAN.CNT 2
     PATENT NO.           KIND   DATE        APPLICATION NO.          DATE
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PI   WO 2003089577         A2    20031030    WO 2003-US11303          20030411
     WO 2003089577         A3    20031231
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             GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
             LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,
             PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ,
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             TJ, TM
         RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG,
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     US 2003229032         A1    20031211    US 2002-317906           20021212
     US 2004106686         A1    20040603    US 2003-723671           20031126
     US 2004116361         A1    20040617    US 2003-723672           20031126
     US 2004152645         A1    20040805    US 2004-761071           20040120
PRAI US 2002-372576P       P     20020415
     US 2002-389368P       P     20020617
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OS   MARPAT 139:345896
GI
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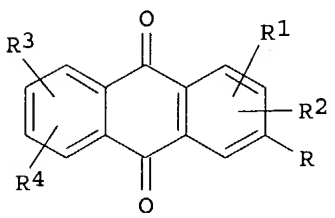

I

AB Anthraquinones are described which are anthelmintic and in particular, are useful in compns. for inhibiting Schistosoma sp. In vitro or in vivo. The preferred anthraquinones have the formula (I) wherein R1, R2, R3, and R4 are each hydrogen, hydroxy, halogen, alkyl, substituted alkyl, alkene, substituted alkene, alkyne, aryl, substituted aryl, cyclic, substituted cyclic, acid group, carbohydrate, or combination thereof, R is a group containing 1 to 12 carbons such as Me, alkyl, substituted alkyl, aldehyde, hydroxy, hydroxymethyl, acid group, 15 carbohydrate, or combination thereof, and the halogen X is I, F, Br, or Cl. The isolation and characterization of anthraquinones from the roots of daylilies (Hemerocallis fulva) is described.

L18 ANSWER 2 OF 2 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2002:788802 CAPLUS
DN 138:52682
TI Kwanzoquinones A-G and other constituents of Hemerocallis fulva 'Kwanzo' roots and their activity against the human pathogenic **trematode** Schistosoma mansoni
AU Cichewicz, Robert H.; Lim, Kee-Chong; McKerrow, James H.; Nair, Muraleedharan G.
CS Department of Horticulture and National Food Safety and Toxicology Center, Bioactive Natural Products and Phytoceuticals, Michigan State University, East Lansing, MI, 48824, USA
SO Tetrahedron (2002), 58(42), 8597-8606
CODEN: TETRAB; ISSN: 0040-4020
PB Elsevier Science Ltd.
DT Journal
LA English
AB Schistosomiasis is a debilitating disease caused by parasitic **trematodes** of the genus Schistosoma that afflicts 200 million people worldwide. Daylilies (Hemerocallis spp.) have been used in Asia for the treatment of schistosomiasis; however, the active principles have not been fully characterized. In our studies of Hemerocallis fulva Kwanzo' Kaempfer roots, we have isolated seven new anthraquinones, kwanzoquinones A (1), B (2), C (4), D (5), E (6), F (7), and G (9), two known anthraquinones, 2-hydroxychrysophanol (3) and rhein (8), one new naphthalene glycoside, 5-hydroxydianellin (11), one known naphthalene glycoside, dianellin (10), one known flavone, 6-methylluteolin (12), and α-tocopherol. The structures of the compds. were elucidated by spectroscopic and chemical methods. Compds. 1-11 and the monoacetates of kwanzoquinones A and B, 1a and 2a, resp., were tested for their activity against multiple life-stages of Schistosoma mansoni. Compound 3 immobilized all cercariae within 15 s at 3.1 μg/mL. However, upon removal of the compound, 20% of the immobilized cercariae recovered after 24 h. In contrast, compound 6 immobilized cercariae within 12-14 min at 25 μg/mL. Following removal of the compound, all cercariae died within 24 h. The adult worms were also immobilized within 16 h by compds. 3 and 6 at 50 μg/mL. None of the compds. had an effect on the schistosomula stage.
RE.CNT 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD
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